

WHAT IS CLAIMED IS:

1                   1.       A test access unit for coupling high speed data in a digital loop carrier  
2 system having a plurality of voice line cards, a plurality of digital line cards, and a backplane  
3 including a time division multiplexed bus for routing voice data and a test bus, said test  
4 access unit comprising:

5                   a data bus interface circuit coupled to route said high speed data to and from  
6 said plurality of digital line cards over a subset of said test bus, whereby said high speed data  
7 is routed over said backplane to or from said plurality of digital line cards without interfering  
8 with said voice data routed over said backplane;

9                   an aggregation multiplexer circuit coupled to aggregate and multiplex said  
10 high speed data from, and to demultiplex and deaggregate said high speed data to, said  
11 plurality of digital line cards via said data bus interface circuit; and

12                  a digital carrier interface circuit coupled to interface said high speed data  
13 between said aggregation multiplexer circuit and a high speed digital network.

1                   2.       The test access unit of claim 1, wherein said subset of said test bus  
2 comprises a 4-wire test bus.

3                   3.       The test access unit of claim 1, further comprising:  
4 a plurality of electrical terminations coupled to test at least one of said digital  
5 loop carrier system and a component associated therewith.

6                   4.       The test access unit of claim 3, wherein said plurality of electrical  
7 terminations are coupled via another subset of said test bus to test at least one of said digital  
8 loop carrier system and said component associated therewith.

9                   5.       The test access unit of claim 4, wherein said another subset of said test  
10 bus comprises a 2-wire test bus.

11                  6.       A data line card for coupling high speed data in a digital loop carrier  
12 system having a backplane including a time division multiplexed bus for routing voice data  
13 and a test bus, said data line card comprising:

1                   a data bus interface circuit coupled to route said high speed data over a subset  
2 of said test bus, whereby said high speed data is routed over said backplane without  
3 interfering with said voice data routed over said backplane;

7 a digital subscriber line termination unit coupled to convert between said high  
8 speed data and twisted pair data; and  
9 a broadband line interface circuit coupled to convert between said twisted pair  
10 data and information received from a subscriber line.

1 7. The data line card of claim 6, wherein said subset of said test bus  
2 comprises a 4-wire test bus.

1 8. The data line card of claim 6, further comprising:  
2 a test relay configured to isolate said broadband line interface circuit from said  
3 subscriber line and to couple said broadband line interface circuit and said subscriber line to  
4 another subset of said test bus.

1 9. The data line card of claim 8, wherein said another subset of said test  
2 bus comprises a 2-wire test bus.

1 10. The data line card of claim 6, further comprising:  
2 a voice interface circuit coupled to interface said voice data between said time  
3 division multiplexed bus and said broadband line interface circuit.

1 11. An overlay system for routing high speed data in a digital loop carrier  
2 system, said digital loop carrier system having a backplane including a time division  
3 multiplexed bus for routing voice data and a test bus, said overlay system comprising:  
4 a plurality of data line cards, each coupled to a subscriber line, and each  
5 coupled to route said high speed data between said subscriber line and a subset of said test  
6 bus, whereby said high speed data is routed over said backplane without interfering with said  
7 voice data routed over said backplane; and  
8 a test access unit coupled to route said high speed data to and from said  
9 plurality of digital line cards over said subset of said test bus, and to interface said high speed  
10 data with a high speed digital network.

1 12. The overlay system of claim 11, wherein each of said plurality of data  
2 line cards comprises:

3 a data bus interface circuit coupled to route said high speed data over said  
4 subset of said test bus;

5 a digital subscriber line termination unit coupled to convert between said high  
6 speed data and twisted pair data; and  
7 a broadband line interface circuit coupled to convert between said twisted pair  
8 data and information received from said subscriber line.

1 13. The overlay system of claim 11, wherein each of said plurality of data  
2 line cards further comprises:  
3 a test relay configured to isolate said broadband line interface circuit from said  
4 subscriber line and to couple said broadband line interface circuit and said subscriber line to  
5 another subset of said test bus.

1 14. The overlay system of claim 13, wherein said another subset of said  
2 test bus comprises a 2-wire test bus.

1 15. The overlay system of claim 11, wherein said subset of said test bus  
2 comprises a 4-wire test bus.

1 16. The overlay system of claim 11, further comprising:  
2 a voice interface circuit coupled to interface said voice data between said time  
3 division multiplexed bus and said broadband line interface circuit.

1 17. The overlay system of claim 11, wherein said test access unit  
2 comprises:  
3 a data bus interface circuit coupled to route said high speed data to and from  
4 said plurality of digital line cards over said subset of said test bus;  
5 an aggregation multiplexer circuit coupled to aggregate and multiplex said  
6 high speed data from, and to demultiplex and deaggregate said high speed data to, said  
7 plurality of digital line cards via said data bus interface circuit; and  
8 a digital carrier interface circuit coupled to interface said high speed data  
9 between said aggregation multiplexer circuit and said high speed digital network.

1 18. The overlay system of claim 17, wherein said test access unit further  
2 comprises:  
3 a plurality of electrical terminations coupled to test at least one of said digital  
4 loop carrier system and a component associated therewith.

1                   19.     The overlay system of claim 18, wherein said plurality of electrical  
2 terminations are coupled via another subset of said test bus to test at least one of said digital  
3 loop carrier system and said component associated therewith.

1                   20.     A method of routing high speed data in a digital loop carrier system,  
2 said digital loop carrier system having a backplane including a time division multiplexed bus  
3 for routing voice data and a test bus, said method comprising the acts of:

4                         receiving said voice data and said high speed digital data from a subscriber  
5 line;

6                         routing said voice data over said time division multiplexed bus and said high  
7 speed digital data over a subset of said test bus, whereby said high speed data is routed over  
8 said backplane without interfering with said voice data routed over said backplane;  
9                         interfacing said high speed data with a high speed digital network; and  
10                        sending said voice data and said high speed digital data to said subscriber line.

11                   21.     The method of claim 20, further comprising:  
12                         testing at least one of said digital loop carrier system and a component  
13 associated therewith via another subset of said test bus.